Economic Research Aid

AN APPRAISAL OF THE FIELD SURVEY OF SOVIET INLAND WATER TRANSPORT

CIA/RR A.ERA 61-4

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CENTRAL INTELLIGENCE AGENCY

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SECRET

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NO DISSEMINATION ABROAD

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FOREWORD

The purpose of this research aid is to evaluate the positive intelligence gains in the field of inland water transport and other benefits that resulted from an exchange of specialists in inland water transport between the US and the USSR during 1960. An additional purpose of the research aid is to call attention to instances of conflicting or apparently erroneous information reported as a result of this exchange.

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Appendixes

AN APPRAISAL OF THE FIELD SURVEY OF SOVIET INLAND WATER TRANSPORT*

I. Introduction

In the spring of 1960, at the request of the USSR, the terms of reference of Section III of the US-USSR Exchange Agreement of 24 November 1959 were expanded to include an exchange of delegations in the field of inland water transport. In the US the exchange was sponsored by the American Waterway Operators, Inc., with the assistance of the US Army Corps of Engineers. The Ministry of the River Fleet, RSFSR, served as the Soviet sponsor.

Under the terms of the agreement the scope of the exchange included: the organization and administration of inland water transport; locks, dams, ship lifts, and related hydrotechnical installations; traffic movement including loading and unloading operations in river ports and transshipment to other means of transport; programs for navigation improvements and maintenance of inland waterways; and ship construction and design for inland waterways.

A US delegation headed by Mr. Jacob W. Hershey, Chairman of the Board of the American Commercial Barge Line Company, visited the USSR from 27 August to 27 September 1960.** The delegation included three barge line executives, a hydraulics engineer from the US Army Corps of Engineers, the Assistant Administrator of the St. Lawrence Seaway, a representative of the marine surveying firm that sets standards for river vessel construction in the US, and two interpreters from the Department of State. Unfortunately the US delegation did not include specialists on cargo handling and dredging.

The Soviet delegation, led by D.D. Pokrovskiy, Chief of the Technical Directorate of the Ministry of the River Fleet, RSFSR, and full-time host of the US delegation during its stay in the USSR, visited the US from 6 October to 4 November 1960.*** The Soviet delegation included three executives from the headquarters of the Ministry of the River Fleet, RSFSR; two executives of river steamship companies subordinate to the Ministry; the head of the Central Scientific Research Institute (for the Study) of the Economics and Operation of Water Transport; and an interpreter from the Foreign Languages Publishing House.

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* The estimates and conclusions in this research aid represent the best judgment of this Office as of 1 July 1961.

** See Appendix C.

*** See Appendix D.

In advance of the actual trip, each member of the US delegation was furnished unclassified studies of the inland water system of the USSR and the organization of river shipping in the USSR. [redacted] 25X1C [redacted] 25X1C [redacted]

The US delegation was treated extremely hospitably during its stay in the USSR and was allowed to see substantially everything that was called for in the agreement. The only overt restrictions imposed on the delegation involved the forbidding of photography in a number of areas.

In Moscow the US delegation held discussions with and was briefed by officials of the Ministry of the River Fleet, RSFSR, and of the Central Scientific Research Institute (for the Study) of the Economics and Operation of Water Transport. The delegation also visited the inland waterways display at the Exhibition of the Achievements of the National Economy as well as locks and other facilities on the Moscow Canal northwest of the city.

From Moscow the delegation traveled by train to Gor'kiy, where it began a journey by river steamer down the Volga to Astrakhan', back up the Volga to the Volga-Don Canal, across the Volga-Don Canal to the Don River, and down the Don River to Rostov. During the river journey the delegation stopped to inspect locks, dams, power stations, shipyards, port facilities, and river vessels, including a floating exhibit of river fleet equipment present and planned.

From Rostov the delegation proceeded to Kiev to inspect port facilities and visit the second largest river shipyard in the USSR, Leninskaya Kuznitsa. The delegation then flew to Leningrad, where it visited the headquarters of the Northwest River Steamship Company and the Leningrad Institute for Engineers in Water Transport and inspected port facilities. Before returning to Moscow for final discussions at the Ministry, the delegation flew to Irkutsk and observed the construction activity at the site of the Bratsk Power Station and the activities of the East Siberian Steamship Company.

The Soviet delegation to the US attended briefings and orientation sessions in Washington conducted by representatives of the US Army Corps of Engineers; the Department of Commerce; and the American Waterway Operators, Inc. The delegation then proceeded to Chicago, where it observed locks and port facilities. From Chicago the delegation went to Minneapolis, where it visited locks, port facilities, and the Hydraulics Laboratory of the University of Minnesota. At the next stop, St. Louis,

the delegation visited a shipyard that builds and repairs river vessels, the headquarters of a barge line, locks on the Mississippi River, and port facilities. The Soviet delegation departed from St. Louis aboard a large towboat pushing a tow of more than 30 barges on a 6-day trip down river to New Orleans. While en route to New Orleans the Soviet delegation made side trips to observe a suction dredge; port facilities at Baton Rouge; and locks and sluice gates at Old River, Louisiana. In New Orleans the delegation visited locks, canals, a ship repair yard, port facilities, operating dredges, and port headquarters. En route from New Orleans to Washington for final discussions, the delegation stopped at Vicksburg, Mississippi, to see the US Army Corps of Engineers Waterways Experiment Station and to observe bank revetment operations. The delegation also stopped at Nashville, Tennessee, to observe cargo handling and to visit a river shipyard.

The published findings of this exchange are available in a series of CIA information reports* that in many cases are supplemented by photographs on file in the CIA Graphics Register.** The series includes individual reports of the members of the US delegation to the USSR and reports of Americans who came in contact with the Soviet delegation during its visit to the US. The latter reports consist primarily of comments on the behavior, personalities, and interests of the members of the Soviet delegation, but they do include some substantive intelligence on the Soviet inland waterways.

Unfortunately the US delegation, unlike its counterparts in the fields of railroad and civil air transport, did not put its findings into a consolidated report. Consequently, no coordinated professional evaluation of the Soviet inland water system was made. Nevertheless, most of the delegates included evaluations as well as descriptions in their reports. Evaluations were made of Soviet river vessels, locks, and shipyards. More important, the operating cost, labor productivity, and capital productivity of the Soviet inland water fleet and the fleets of some of the large US inland water barge lines were compared.

Although no major intelligence gaps were filled, a considerable amount of useful information was obtained on inland water transport in the USSR. Some of the reports present new information that provides a clearer picture of the operations of the Soviet river fleet and increases the amount of basic material available for future research on inland water transport in the USSR; other reports are useful primarily as confirmation for data already available. In a few instances, reports present inaccurate

* For the designations of these reports, see Appendixes A and B.
** The serial number of each photograph is referenced in the appropriate reports and in a master photographic report as well.

or erroneous information that is refuted either by other reports resulting from the exchange or by information previously available to the intelligence community.

The information reported as a result of this exchange is discussed in the three sections that follow. The first discusses those categories of information in which positive intelligence gains were made, the second discusses those in which data were acquired that confirm information already available, and the third calls attention to categories of information in which there were errors or inconsistencies in reporting. Throughout each section, references will be made to those reports listed in Appendixes A and B that provide the most meaningful or extensive reporting on the subject being discussed.

The usefulness of this exchange as a source of intelligence is not, of course, confined to the reporting cited here. All the US participants in the exchange are generally available to answer questions that may arise in the future on the subject of their findings and observations or to provide professional advice on problems confronting the intelligence community on the Soviet inland waterways in the future.

II. Positive Intelligence Gains

The inland waterways exchange provided very little intelligence outside the scope of the exchange. There were a few significant gains in the military and industrial fields. The categories of information in which positive intelligence gains were made are discussed below.

1. Fleet Size and Composition

No new information on the over-all size of the fleet was obtained, but the delegation acquired considerable knowledge that will facilitate future estimating of the size and composition of the fleet. Before the exchange the names of vessels in the Soviet river fleet were available in considerable abundance from the press. In most cases, however, the only identification for the vessel was the name of the steamship company to which it was subordinate and the fact that it was a tug, motorship, or barge. No important characteristics needed in compiling fleet inventories such as cargo-carrying capacity or horsepower were given, and no indication was given of the class of series-built vessels to which the vessel belonged. The important specifications for most classes of series-built vessels are available from the Soviet press, so that once the class of a vessel has been determined, its specifications usually are also known. Through observations and photography by the US delegation the classes of many vessels previously known only by name were determined.

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[redacted]

Through observation and analysis of photographs taken by the delegation, a better knowledge was obtained of the composition and employment of the river fleets on some of the most important rivers in the European part of the USSR.**

In addition, some spotty information was obtained on the number of vessels in certain series-built classes and on the sizes and compositions of the fleets of certain steamship companies.***

2. Vessel Characteristics

The delegation received measurement and other data on various classes of vessels from its hosts, but in most cases these data were already available in Soviet open literature on inland water transport and ship construction. The means by which positive knowledge of ship characteristics was advanced were primarily visual and photographic. A number of vessel classes on which no graphic material had previously been available were observed and photographed, adding much to knowledge of their characteristics and greatly facilitating their identification in the future. Included were two classes of lighters that the USSR is converting into motorships. Excellent photographic coverage was obtained of one class of vessels about which nothing had been known previously -- a small-scale integrated tow for use on marine construction projects.†

3. Port Layout and Equipment

Considerable new information was obtained on the layouts and equipment in specific ports visited. These ports included the North Port of Moscow; the timber and general cargo piers in Gor'kiy; the entire port areas of Ul'yanovsk, Stavropol', Volzhskiy, and Tsimlyanskiy; and parts of the river port areas of Stalingrad, Astrakhan', Rostov, Kiev, and Leningrad.††

4. Ship Repair and Construction Facilities

The delegation was not permitted to visit Krasnoye Sormovo, the largest shipyard in the USSR for the construction of river vessels, and was unable to learn anything about the production equipment and output of this yard. It did, however, visit Leninskaya Kuznitsa, the second

* See reports 31 and 53, Appendix A.
** See reports 49 and 50, Appendix A.
*** See report 7, Appendix A, and reports 13 and 18, Appendix B.
† See report 53, Appendix A.
†† See reports 2, 3, 4, 8, 9, 15, 16, 33, 35, 37, and 53, Appendix A.

most important yard for production of river vessels, and was able to learn much about its equipment and its current production.* Additional knowledge of river shipbuilding and repair activity was gained from other yards observed or visited in the Gor'kiy area, in Stavropol', in Astrakhan', in Rostov, and in and near Kiev. Noted were a number of Soviet innovations in the field of ship repair and construction that might be of use to the US industry.**

5. Labor Force and Labor Productivity

No information was obtained on the size of the working force in inland water transport in the USSR. Some indexes of labor productivity, however, were obtained for dry cargo operations on the Volga. When compared with similar indexes for the river fleet as a whole, these indexes appeared to be in the proper order of magnitude. Some useful information also was received on the manning requirements for specific types of vessels under normal conditions and after steps to reduce manning requirements have been taken. Such steps include the use of personnel trained in dual professions and the installation of equipment making possible remote control of the main engines from the pilot house.***

6. Cargo Movements

As a result of this exchange, considerable information was acquired on the total volumes of cargo and the identities of commodities moving through the specific ports and the waterways visited by the delegation. Little new information was acquired, however, on either the relative or the absolute volumes of these commodities.

7. Training and Research

Considerable insight into certain phases of training and research was gained by a visit to the Leningrad Institute for Engineers in Water Transport, largely because the delegates were presented with copies of a book describing the purposes, courses, research activities, and faculty of the Institute. One significant piece of information acquired about research activity is that the major tank-testing facilities for river vessel hulls are located at the Krasnoye Sormovo Shipyard in Gor'kiy.

8. River Fleet Communications

The delegation received a much clearer idea of the nature and extent of radio communications equipment on vessels of the river fleet than

* See reports 1, 30, and 46, Appendix A.
** See reports 6, 8, 19, 20, 34, 42, 44, 45, 48, 51, and 52, Appendix A.
*** See reports 7 and 18, Appendix A.

had been available before. It learned nothing, however, about other aspects of river fleet communications.*

9. Cargo-Handling Technology

During its discussions and observations the US delegation was unable to observe all phases of Soviet cargo-handling technology but was able to substantiate available intelligence estimates on Soviet adoption of such techniques as the use of containers, hydraulic sand unloaders, forklift adapters, and mechanical hands. In Astrakhan' the delegation inspected a floating petroleum transloader of a type on which no information had previously been available.** The delegation also obtained some new information on special grabs for use on cranes in the handling of gravel and timber.*** Nothing at all was learned through discussion or observation about pneumatic equipment for handling free-flowing cargoes such as grain and cement or about specialized facilities for the handling of cargoes such as coal and ore.

10. Waterway Network

The US delegation received a considerable amount of data on the development of the inland water system. Although most of the data were already well known, the delegation was able to report for the first time the extent to which locking operations are mechanized and automatized in the USSR.†

11. Industrial Reporting

Except for industrial installations subordinate to the Ministry of the River Fleet, RSFSR, the only industrial reporting of any value consisted of photography of cement and chemical plants at Vol'sk and the locating of an installation believed to be a new thermal power station near Kiev.*

12. Military-Strategic Reporting

This exchange produced the first good photography in 7 years of a number of important bridges crossing the Volga.**

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* See report 18, Appendix A.
** See report 44, Appendix A.
*** See report 53, Appendix A.
† See reports 7, 10, 18, and 20, Appendix A.

III. Confirmatory Information

1. Improved Ship Technology

The delegation was permitted to observe at first hand three recent Soviet advances in ship technology: automatic couplers for pusher tugs, remote control of engines from the pilot house, and pivoting Kort nozzles as substitutes for rudders.* Because of the publicity that these advances have received in Soviet literature, however, little new information was acquired about them. It is interesting to note that other innovations which have received similar publicity were neither shown nor mentioned to the delegation. These innovations include the use of exhaust gases from pusher tugs to reduce fire hazards in air spaces aboard oil barges and the use of gas turbine propulsion in river vessels.

2. Capital Investment in Inland Water Transport

The delegation received information on the annual amount of capital investment in fleet, ports, worker housing, and waterway improvement.* The information received, however, served largely as confirmation for information already available from Soviet open sources. All data on capital investment not in agreement with data already available were so loosely defined that the data would be of little value in any case.

IV. Inconsistencies and Errors in Reporting

1. Reports 17 and 20** gave the depth over sill of the locks on the Volga-Don Canal as 10 feet or less. This figure is significantly lower than the figure of 13.1 feet available from other sources. 1/*** The latter figure is the more plausible for two reasons -- the new 5,000-ton† dry cargo motorships intended for use on the canal draw 11.5 feet, 2/ and the guaranteed depth planned for the integrated waterway system of which the Volga-Don Canal is a part is 12 feet. (See report 7.**)

2. Report 11** claims that the jurisdiction of the East Siberian Steamship Company extends down the Yenisey to Igarka. Actually, shipping on the entire Yenisey River comes under the jurisdiction of the Yenisey River Steamship Company. The jurisdiction of the East Siberian Steamship Company extends only to the point where the Angara flows into the Yenisey. 3/

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* See reports 7 and 18, Appendix A.
** Appendix A.
*** For serially numbered source references, see Appendix E.
† Tonnages are given in metric tons throughout this research aid.

3. Report 21* claims that the steel plating used on river vessels in the USSR is heavier than that used on US river vessels. This claim is refuted by observations in reports 15, 17, and 18* which point out that the steel plating is actually lighter.

4. Reports 7 and 18* both assert that "profits are plowed back to expand and develop waterway systems." This assertion is misleading. Profits are used in part to finance capital investment in the inland water fleet and in shore installations. However, capital improvements in waterways such as the deepening of channels and the building of locks are financed from the state budget. 4/ Part of the profits of the operations of the Ministry of the River Fleet do go into the state budget, but these sums cover only a small part of the budget allocations to the ministry for waterway expansion and other purposes.

5. Report 1* lists among the facilities at the Leninskaya Kuznitsa Shipyard in Kiev a machine shop and a foundry. Actually, there was no foundry of any kind, and the only machine shop of any size was still under construction. (See report 30.*)

6. Report 8* contains a considerable amount of inaccurate information about shipyards in the Astrakhan' area. The Lenin Shipyard is described as a large yard with 31 ways. It actually contained two or three buildings ways at the most, and these were quite small. The vessels under construction on them at the time that the report was written were 150-ton tankers. (See report 48.*)

This same report describes the Third International Shipyard in Astrakhan' as a yard primarily engaged in the repair and construction of tankers. At the time the US delegation visited the yard, there was not a single tanker under repair or construction at the yard. The yard was repairing one tank barge and repairing and building dry cargo barges and floating bunkering stations for liquid fuel. (See report 44.*)

7. According to report 12,** the volume of dry cargo that moves on the Volga is 45 million tons a year; according to report 1,* it is 10 million tons; and according to report 17,* it is 35 million tons. The latter amount appears to be the most plausible because in 1955 the volume of dry cargo traffic on the Volga was only 20.9 million tons 5/ and because the increase in the volume of cargo moved by the river fleet as a whole during 1955-59 was only 38 percent. 6/ On the assumption that the volume of dry cargo moving on the Volga increased at the same rate, it would have been only 28.8 million tons in 1959.

* Appendix A.
** Appendix B.

8. Report 20* includes small tugs and amphibious ice cutters among the vessels produced at the Leninskaya Kuznitsa Shipyard in Kiev. Although no vessels fitting these descriptions were under production there at that time, it appears likely that the observer was actually referring to a series of miniature integrated tows, including a stern propulsion unit plus center and bow sections, that were under construction. (See report 29.*)

9. Report 6* reported production of deck barges at the Lenin Shipyard in Astrakhan' and the presence of two such barges at the docks of the Lenin Shipyard. In this instance the docks in question were actually docks of the Third International Shipyard farther downstream. There was no evidence of barge construction at the Lenin Shipyard. (See reports 47 and 51.*)

10. Report 15* reported that vessels were anchored in midstream at the river port of Ul'yanovsk. Such a situation would have been impossible because the port is located on the Kuybyshev Reservoir, which is close to 5 miles across at that point. Tha anchorage is actually within a breakwater that is built parallel to the main pier, possibly a quarter of a mile offshore. (See report 52.*)

11. Report 21* states that no refuge harbors were observed during the visit of the US delegation to the USSR. The delegation visited at least three ports that were protected by breakwaters, including Ul'yanovsk, Stavropol', and Tsimlyanskiy. (See report 52.*)

12. Report 21* describes a telephone call made from a river vessel at Stalingrad, implying that this call was made by radio telephone. It was actually made from a telephone aboard ship that is connected to landlines through a dockside receptacle at times when the vessel is tied up to a pier. (See report 17.*)

13. Report 18* reports the speed of the standard 2,000-ton self-propelled dry cargo vessel on Soviet inland waterways as 14 knots, and both this report and report 7* state that a large part of the self-propelled fleet on the Volga moves at from 14 to 15 miles per hour. In all of these cases the speeds were actually in kilometers per hour. 7/

14. Report 10** gives the standard size of containers on the Soviet inland waterways as 1-1/2 tons to 25 tons. The correct sizes, given in reports 7 and 18,* are 1-1/4 tons and 2-1/2 tons.

* Appendix A.
** Appendix B.

15. Report 17* states that the cargo turnover of the Soviet river fleet was 87 billion ton-miles in 1959; according to the Soviet statistical yearbook it was 93.6 billion ton-kilometers. 8/

16. Report 7* gives the speed of the new 3,300-ton tankers in use on the Volga as 13 knots. According to the Soviet inland waterways press, their speed is 17 kilometers per hour, the equivalent of 9.2 knots. 9/

17. According to report 7* the Volga United Steamship Company made a profit of 1 billion rubles** in 1959, representing 6 percent of gross revenues. Such a profit would imply gross revenues of 16.7 billion rubles, many times the estimated total for the ministry as a whole. Report 18* says that gross revenues for the ministry were 6 billion rubles. If existing estimates are correct, even this figure is too high. It should have been approximately 3 billion rubles. 10/

18. Report 22* described the Meteor as a 66-passenger, 700-horsepower hydrofoil vessel operating out of Moscow and the Raketa as a 130-passenger, 1,000-horsepower hydrofoil vessel operating on the upper Angara River. The Meteor is actually the 130-passenger vessel, and it was operating out of Gor'kiy at the time that the US delegation visited it. The delegation visited two 66-passenger Raketa-class hydrofoil vessels -- at Moscow and at Irkutsk. (See reports 7, 18, and 52.***) The actual horsepower of the Meteor and Raketa classes is 1,700 and 900, respectively. 11/

* Appendix A.

** In this research aid, ruble values are given in current rubles and may be converted at the pre-1961 rate of exchange of 4 rubles to US $1.

*** Appendix A. The vessels referred to in these reports as belonging to the Comet, or Kometa, class actually belong to the Raketa class.